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10 [Title of the Invention]

Data converting device

[Abstract]

[Object]

15 It is enabled to check an item name in a card-type database and convert data having its corresponding item name into an address book database at data conversion from the card-type database into the address book-specialized database.

20 [Constitution]

The data converting device comprises a card-type database memory, an address data memory, a comparison data memory that previously stores comparison data indicating correspondence between an item in the card-type database memory and an item in the address data memory, and a processor. The device is organized such
25 that the processor sequentially reads out data from the

card-type database memory on the basis of a card of data, checks an item of the read out card of data, and refers to comparison data in the comparison data memory to copy the item of the data to the position of its
5 corresponding item in the address data memory.

[Claims for the Patent]

[Claim 1]

A data converting device comprising: card-type database storage means that stores various kinds of data including address data including items such as a zip code, an address and a full name in a card-type database; address data storage means for storing the address data including the item such as a zip code, an address and a full name; comparison data storage means that stores comparison data indicating correspondence between items in said card-type database storage means and items in said address data storage means; read-out means for sequentially reading out data from said card-type database storage means on the basis of a card of data; and copying means for checking an item of the card of data read out by said read-out means and referring to comparison data in said comparison data storage means to copy an item of the data to the position of the corresponding item in said address data storage means.

[Detailed Description of the Invention]

[0001]

[Industrial Application Field]

The present invention relates to a data converting device for performing data conversion from a card-type database into an address book-specialized database, the

device being used for a Japanese word processor or a personal computer.

[0002]

[Conventional Art]

5 Conventionally, in this type of data converting device, when such type of data converting device performs data conversion from a typical card-type database into an address book-specialized database, it performs the conversion on an item-by-item basis
10 according to a format of the database because the conversion results different data, which is meaningless, due to change in the order of items.

[0003]

[Problems to be Solved by the Invention]

15 However, as can be seen from the above description, there is a problem in that an item name in a card-type database must be in a format of an address book-specialized database in order to perform the conversion item-by-item according to a format of a target database.

20 [0004]

 In view of the above circumstances, the present invention provides a data converting device for, at data conversion from a card-type database into an address book-specialized database, automatically
25 checking an item name in the card-type database and converting data having its corresponding item name into the address book database.

[0005]

[Means for Solving the Problems]

Figure 1 is a block diagram showing the organization of the present invention. As shown in the drawing, a data converting device according to the present invention comprises: card-type database storage means 101 that previously stores various kinds of data including address data including items such as a zip code, an address and a full name in a card-type database; address data storage means 102 for storing the address data including the item such as a zip code, an address and a full name; comparison data storage means 103 that previously stores comparison data indicating correspondence between items in the card-type database storage means 101 and items in the address data storage means 102; read-out means 104 for sequentially reading out data from the card-type database storage means 101 on the basis of a card of data; and copying means 105 for checking an item of the card of data read out by the read-out means 104 and referring to comparison data in the comparison data storage means 103 to copy an item of the data to the position of the corresponding item in the address data storage means 102.

25 [0006]

The address data storage means 102 and the card-type database storage means 101 in the present

invention can be any storage means that can store address data and various kinds of data including address data. For example, various kinds of external storage devices such as a floppy disc device or a
5 magnetic disc device are used as such storage means.

[0007]

The read-out means 104 and the copying means 105 can be preferably a micro computer comprising a CPU, a ROM, a RAM and an I/O port. The comparison data
10 storage means 103 can be the external storage device such as the RAM, the floppy disc device or the magnetic disc device.

[0008]

[Operation]

15 According to the present invention, when address data stored in the card-type database storage means 101 is converted into address data in the address data storage means 102, the read-out means 104 sequentially reads out data from the card-type database storage
20 means 101 on the basis of a card of data.

[0009]

Then, the copying means 105 checks an item name of the read out card of data and refers to comparison data stored in the comparison data storage means 103 to copy
25 data having the item name to the position of its corresponding item in the address data storage means 102.

[0010]

As above, an item name of data stored in the card-type database storage means 101 is automatically checked and copied to the position of its corresponding item in the address data storage means 102. This allows conversion of address data stored in the card-type database storage means 101 into its corresponding address data in the address data storage means 102 irrespective of the order of items to be converted.

10 [0011]

[Embodiments]

The following will describe the present invention in detail based on an embodiment shown in the drawings. However, the present invention is not limited to the embodiment.

[0012]

Figure 2 is a block diagram showing the organization of an example in which the present invention is applied to a Japanese word processor. In the drawing, reference numeral 1 denotes a keyboard comprising kana character keys, numeric keys, a conversion key, function keys and the like. The keyboard inputs various kinds of data to a control device 2.

25 [0013]

The control device 2, which includes a micro computer comprising a CPU, a ROM, a RAM and an I/O port,

performs various kinds of data processing described below according to a control program written in a program memory 3 including a ROM.

[0014]

- 5 Reference numeral 4 denotes a display device which is a CRT display device, an LC (liquid crystal) display device, or an EL display device. The device 4 displays various kinds of information inputted by the keyboard 1.

[0015]

- 10 Reference numerals 5 and 6 denote card-type database memories consisting of external memories such as floppy disc devices for previously storing various kinds of data including address data attached with item names such as a zip code, an address, a full name, or a
15 telephone number. Reference numeral 5 denotes a format memory for stocking layout information, for example, while reference numeral 6 denotes a data memory for storing data.

[0016]

- 20 Reference numeral 7 denotes an address book data memory for storing addressee data of item names including an addressee number, a zip code, an address, a full name, a heading, a telephone number and remarks. Reference numeral 8 denotes a comparison item name data
25 memory being a ROM to check item names in a card-type database. The memory 8 stores comparison item name data that indicates the correspondence between an item

name stored in the card-type database format memory 5 and an item name of address book data stored in the address book data memory 7.

[0017]

5 Figure 3 is an illustrative drawing of memory structure of the card-type database format memory 5. As shown in the drawing, the card-type database format memory 5 stores paper information, various types of format information and item information 1, 2, ..., n.

10 [0018]

As the paper information, form information such as the size of paper or left/right and top/bottom margins or tab set information is set. As the item information 1, 2, ..., n, an item number, an item name, an item size and item attributes are stored, respectively.

[0019]

Figure 4 is an illustrative drawing of memory structure of the card-type database data memory 6. As shown in the drawing, the card-type database data memory 6 stores data of items 1 to n as data 1 of card number 1 to data m of card number m on a card-by-card basis.

[0020]

Figure 5 is an illustrative drawing of memory structure of the address book data memory 7. As shown in the drawing, address book data including item names of an addressee number, a zip code, an address, a full

name, a heading, a telephone number and remarks is registered to the address book data memory 7 in that order for each of the addressee data 1 to addressee data n.

5 [0021]

Figure 6 is an illustrative drawing of content of comparison item name data stored in the comparison item name data memory 8. As shown in the drawing, comparison item name data is a table to check item names in a card-type database and assign a corresponding item to an addressee number. The table, for example, indicates that an "addressee number", a "number" and a "NO" correspond to an addressee number in an address book, and a "full name" and a "name" correspond to a "full name" in the address book.

15 [0022]

The control device 2 sequentially reads out a card of data from the card-type database data memory 6, checks an item name of the data based on format information stored in the card-type database format memory 5, and refers to comparison item name data stored in the comparison item name data memory 8, thereby copying address data in the card-type database data memory 6 to the position of an corresponding item in the address book data memory 7.

25 [0023]

Next, details of the processing operation of the control device 2 as above will be described with reference to flowcharts shown in Figures 7 to 9.

[0024]

5 Figure 7 is a flowchart showing details of main processing operation of addressee data conversion. In the addressee data conversion, the control device 2 first reads an item name in the card-type database from the card-type database format memory 5 (step 21), and
10 performs converted item retrieval described below and converted information setting (step 22).

[0025]

Next, the device 2 checks data (step 23). If the data is not the last one, the device 2 performs data
15 conversion processing described below (step 25). If further data remains (step 26), the device returns to step 23 to repeat the processing. If no further data remains, the device transfers the read data to the respective positions of items corresponding to
20 addressee data in the address book data memory 7 (step 27). If the data is the last one in the data check at step 23, the device 2 finishes the processing.

[0026]

Figure 8 is a flowchart showing details of
25 processing operation of converted item retrieval and converted information setting. In the converted item retrieval and converted information setting, the

control device 2 first searches an item corresponding to an addressee number. If there is a corresponding item (step 32), the device 2 sets a column of the item (step 33). If there is no corresponding item, the
5 device 2 sets a card number output flag (step 34).

[0027]

Next, the device 2 searches an item of a zip code (step 35). If there is a hit (step 36), the device 2 sets a column of the item (step 37). Then, the device
10 2 searches an item of address (step 38). If there is a hit (step 39), the device 2 sets a column of the item (step 40). Then, the device 2 searches an item of full name (step 41). If there is a hit (step 42), the device 2 sets a column of the item (step 43). Then,
15 the device 2 searches an item of heading (step 44). If there is a hit (step 45), the device 2 sets a column of the item (step 46). Then, the device 2 searches an item of telephone number (step 47). If there is a hit (step 48), the device 2 sets a column of the item (step
20 49). Then, the device 2 searches an item of remarks (step 50). If there is a hit (step 51), the device 2 sets a column of the item (step 52).

[0028]

Figure 9 is a flowchart showing details of
25 processing operation of data conversion. In the data conversion processing, the control device 2 first reads

a card of card data from the card-type database (step 61).

[0029]

Next, the device 2 captures item data to be
5 converted into an addressee number (step 62), captures
item data to be converted into a zip code (step 63),
captures item data to be converted into an address
(step 64), captures item data to be converted into a
full name (step 65), captures item data to be converted
10 into a heading (step 66), captures item data to be
converted into a telephone number (step 67), and
captures item data to be converted into remarks (step
68).

[0030]

15 As described in the above, by recognizing item
names, and organizing the items such that they can be
converted into address book data irrespective of the
order of items to be converted, data conversion can be
readily performed from a typical card-type database
20 into an address book-specialized database.

[0031]

[Effects of the Invention]

With the present invention, item names are checked
and respective data stored in card-type database
25 storage means is copied to the positions of their
corresponding items in address data storage means.
This allows for easy conversion of address data stored

in the card-type database storage means into its
corresponding address data in address data storage
means irrespective of the order of the items.

[Brief Description of the Drawings]

5 [Figure 1]

A block diagram showing the organization of the
present invention.

[Figure 2]

A block diagram showing the organization of an
10 example in which the present invention is applied to a
Japanese word processor.

[Figure 3]

An illustrative drawing of memory structure of a
card-type database format memory.

15 [Figure 4]

An illustrative drawing of memory structure of a
card-type database data memory.

[Figure 5]

An illustrative drawing of memory structure of an
20 address book data memory.

[Figure 6]

An illustrative drawing of content of comparison
item name data stored in a comparison item name data
memory.

25 [Figure 7]

A flowchart showing details of main processing
operation of addressee data conversion.

[Figure 8]

A flowchart showing details of processing operation of converted item retrieval and converted information setting.

5 [Figure 9]

A flowchart showing details of processing operation of data conversion.

[Description of Symbols]

- 1 Keyboard
- 10 2 Control device
- 3 Program memory
- 4 Display device
- 5 Card-type database format memory
- 6 Card-type database data memory
- 15 7 Address book data memory
- 8 Comparison item name data memory

Drawings

[Figure 1]

- 101 Card-type database storage means
- 102 Address data storage means
- 5 103 Comparison data storage means
- 104 Read-out means
- 105 Copying means

[Figure 2]

- 10 1 Keyboard
- 2 Control device
- 3 Program memory
- 4 Display device
- 5 Card-type database format memory
- 15 6 Card-type database data memory
- 7 Address book data memory
- 8 Comparison item name data memory

[Figure 3]

- 20 #1 Paper information (form data and tab information)
- #2 Format information
- #3 Item information 1
- #4 Item information 2
- #5 Item information n
- 25 #6 Item number
- #7 Item name
- #8 Item size

#9 Item attribute

[Figure 4]

#1 Data 1
 5 #2 Data 2
 #3 Data m
 #4 Item 1
 #5 Item 2
 #6 Item n

10

[Figure 5]

#1 Addressee data 1
 #2 Addressee data 2
 #3 Addressee data n
 15 #4 Addressee number
 #5 Zip code
 #6 Address
 #7 Full name
 #8 Heading
 20 #9 Telephone number
 #10 Remarks

[Figure 6]

1 Addressee number: addressee number
 25 Number
 NO.
 Terminator

2 Zip code: zip code
Postal mail
(Symbol of zip code)
(Another symbol of zip code)

5 Terminator

3 Address: address
Terminator

4 Full name: full name
Name

10 Terminator

5 Heading: heading
Heading
Terminator

6 Telephone number: telephone number

15 Telephone
(Symbol of telephone number)
TEL
Terminator

7 Remarks: remarks

20 Note
Terminator

[Figure 7]

21 Read card-type database item name

25 22 Converted item retrieval and converted information
setting

23 Check data

- 24 Last data?
- 25 Data conversion processing
- 26 Further data?
- 27 Transfer to addressee data
- 5 #1 Main processing of addressee conversion
- #2 End

[Figure 8]

- 31 Search addressee number item
- 10 32 Hit?
- 33 Set item column
- 34 Card number output flag
- 35 Search zip code item
- 36 Hit?
- 15 37 Set item column
- 38 Search address item
- 39 Hit?
- 40 Set item column
- 41 Search full name item
- 20 42 Hit?
- 43 Set item column
- 44 Search heading item
- 45 Hit?
- 46 Set item column
- 25 47 Search telephone number item
- 48 Hit?
- 49 Set item column

50 Search remarks item
51 Hit?
52 Set item column
#1 Converted item retrieval and converted information
5 setting
#2 End

[Figure 9]

61 Read a card of data from card-type database
10 62 Capture item data to be converted into addressee
number
63 Capture item data to be converted into zip code
64 Capture item data to be converted into address
65 Capture item data to be converted into full name
15 66 Capture item data to be converted into heading
67 Capture item data to be converted into telephone
number
68 Capture item data to be converted into remarks
#1 Data conversion processing
20 #2 End

5

データを取り込み（ステップ63）、住所に変換する項目のデータを取り込み（ステップ64）、氏名に変換する項目のデータを取り込み（ステップ65）、見出しに変換する項目のデータを取り込み（ステップ66）、電話番号に変換する項目のデータを取り込み（ステップ67）、備考に変換する項目のデータを取り込む（ステップ68）。

【0030】このようにして、項目名を認識し、変換する項目の順番がどのようになっているにも住所録データに変換できるように対応をはかることにより、一般的なカード型データベースから住所録専用のデータベースに簡単にデータ変換を行うことができる。

【0031】

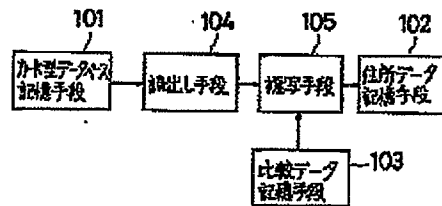
【発明の効果】この発明によれば、項目名をチェックして、カード型データベース記憶手段に記憶された各データを該当する住所データ記憶手段の項目の位置に複写するようにしたので、項目の順番がどのようになっているにも、カード型データベース記憶手段に記憶された住所データを、対応する住所データ記憶手段の住所データに容易に変換することができる。

【図面の簡単な説明】

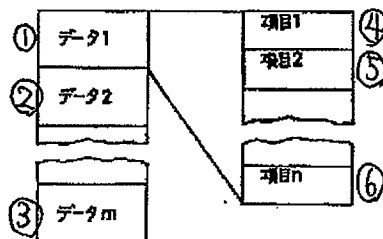
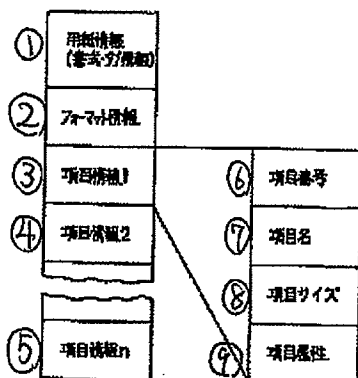
【図1】この発明の構成を示すブロック図。

【図2】この発明を日本語ワードプロセッサに適用した一実施例の構成を示すブロック図。

【図1】 Fig. 1



【図3】 Fig. 3



【図4】 Fig. 4

6

【図3】カード型データベースフォーマットメモリのメモリ構造を示す説明図。

【図4】カード型データベースデータメモリのメモリ構造を示す説明図。

【図5】住所録データメモリのメモリ構造を示す説明図。

【図6】比較項目名データメモリに記憶された比較項目名データの内容を示す説明図。

【図7】宛名データ変換のメインの処理動作の内容を示すフローチャート。

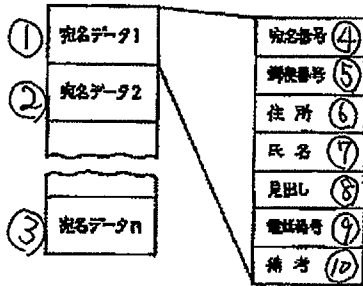
【図8】変換項目の検索及び変換情報のセットの処理動作の内容を示すフローチャート。

【図9】データ変換の処理動作の内容を示すフローチャート。

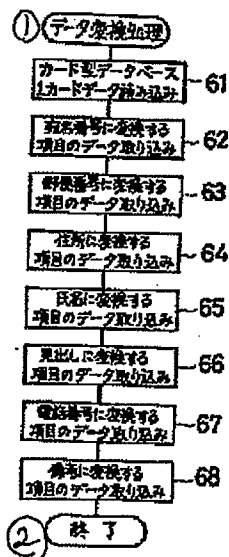
【符号の説明】

- 1 キーボード
- 2 制御装置
- 3 プログラムメモリ
- 4 表示装置
- 5 カード型データベースフォーマットメモリ
- 6 カード型データベースデータメモリ
- 7 住所録データメモリ
- 8 比較項目名データメモリ

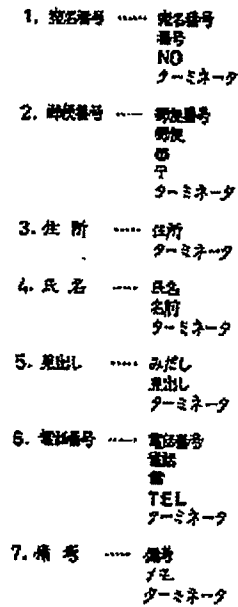
【図5】 Fig.5



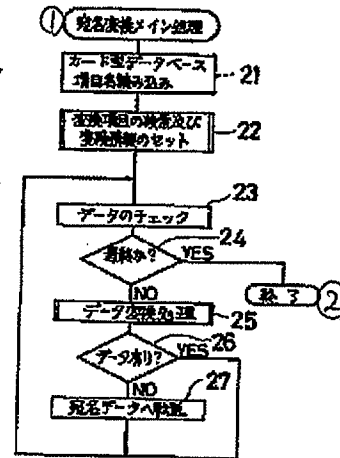
【図9】 Fig.9



【図6】 Fig.6



【図7】 Fig.7



【図8】 Fig.8

